



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,289	07/19/2001	Jim E. Petranovich	01CON213P	1722
25700	7590	03/29/2005	EXAMINER	
FARJAMI & FARJAMI LLP 26522 LA ALAMEDA AVENUE, SUITE 360 MISSION VIEJO, CA 92691			TRAN, KHANH C	
			ART UNIT	PAPER NUMBER
			2631	
DATE MAILED: 03/29/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/910,289

Applicant(s)

PETRANOVICH, JIM E.

Examiner

Khanh Tran

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 and 23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-14 is/are allowed.
- 6) ☒ Claim(s) 1,3-6,15-18,20,21 and 23 is/are rejected.
- 7) ☒ Claim(s) 2,7 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/19/2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claim 23 has been renumbered 22.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-6, 15-18, 20-21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beale et al. U.S. 2003/0048839 A1.

Regarding claim 1, in paragraph [0057], Beale et al. teaches that data sequences are made up of a preamble, a header, and a body. The preamble contains training information allowing the receiver to be trained for that data sequence and subsequently to receive and decode the header and body. The header contains baud rate of the data within the body.

In paragraph [0072], also referring to figure 1, the equalizer is initially trained as though the body of the sequence is at a rate of 2 Mbaud. In view of that, the plurality of equalizing taps is adapted for 2 Mbaud.

In paragraph [0073], also referring to figure 1, once the equalizer has been trained by the training sequence, switch 28 is moved to the receive position and the header is decoded 38

to determine the baud rate of the body of the data sequence.

In paragraph [0075], also referring to figure 1, if after decoding the header, it transpires that the equalizer has been trained at the wrong baud rate, then the equalizer must be retrained using thirty two samples in the training sequence store 22. Beale et al. does not expressly teach that a plurality of zeros is inserted into the preamble as set forth in the application claim. Nevertheless, as disclosed in paragraph [0064], Beale et al. teaches that in embodiments where the higher baud rate is twice the lower baud rate a zero is inserted after every sample thereby doubling the baud rate of the apriori known training sequence. Since the preamble contains training information allowing the receiver to be trained for that data sequence, it would have been obvious for of ordinary skill in the art at the time the invention was made that a plurality of zeros is inserted into the preamble to be fed into the equalizer for retraining. The plurality of equalizing taps is adapted for the new symbol rate.

Regarding claims 3 and 20, in paragraph [0076], the header is transmitted at 2 Mbaud rate. Therefore, the symbol rate of the preamble and the symbol rate of the header segment are the same.

Regarding claims 4 and 21, as recited in claim 1, the equalizer is initially trained as though the body of the sequence is at a rate of 2 Mbaud. In paragraph [0075], the header is decoded to indicate 4 Mbaud.

Regarding claim 5, as recited in claim 1, a plurality of zeros is inserted into the preamble to be fed into the equalizer for retraining.

Regarding claim 6, Beale et al. does not expressly teach zero is inserted between each symbol of said header segment. However, in paragraph [0076], the header is transmitted at 2 Mbaud rate. Because the header is transmitted at 2 Mbaud rate, every other symbol of the header is zero, therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made that Beale et al. impliedly teaches zero being inserted between each symbol of said header segment.

Regarding claim 15, referring to figure 1,

In paragraph [0060], data is fed into a data buffer 30;

Referring to the flow chart of figure 3, at step 52, the preamble is processed;

In paragraph [0073], after the equalizer being trained, the header is decoded to determine the baud rate of the body of the data sequence.

In paragraph [0075], also referring to figure 1, if after decoding the header, it transpires that the equalizer has been trained at the wrong baud rate, then the equalizer must be retrained using thirty two samples in the training sequence store 22. Beale et al. does not expressly teach that a plurality of zeros is inserted into the preamble as set forth in the application claim. Nevertheless, as disclosed in paragraph [0064], Beale et al. teaches that in embodiments where the higher baud rate is twice the lower baud rate a zero is inserted after every sample thereby doubling the baud rate of the apriori known training sequence. Since the preamble contains training information allowing the receiver to be trained for that data sequence, it would have been obvious for of ordinary skill in the art at the time the invention was made that a plurality of zeros is inserted into the preamble to be fed into the equalizer for retraining. Furthermore, Beale et al. does not expressly teach zero is inserted between each symbol of said header segment. However, in paragraph [0076], the header is transmitted at 2 Mbaud rate. Because the header is transmitted at 2 Mbaud rate, every other symbol of the header is zero, therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made that Beale et al. impliedly teaches zero being inserted between each symbol of said header segment. In paragraph [0076], after the equalizer has been retrained with the preamble of the correct symbol rate, the remaining of the header is decoded.

Regarding claims 16-17, in paragraph [0062], an adaptive equalizer 24 is provided that contains an adaptive filter, which may comprise a FIR filter. The coefficients for the adaptive filter *are trained for each data sequence* that is received and the equalizer state machine diagram controls the data that is fed to the equalizer 24.

Regarding claim 18, referring to figure 1, buffering and processing the preamble are performed concurrently as appreciated by one of ordinary skill in the art.

Regarding claim 23, as recited in claim 15, Beale et al. does not expressly teach that a plurality of zeros is inserted into the preamble as set forth in the application claim. Nevertheless, as disclosed in paragraph [0064], Beale et al. teaches that in embodiments where the higher baud rate is twice the lower baud rate a zero is inserted after every sample thereby doubling the baud rate of the apriori known training sequence. Since the preamble contains training information allowing the receiver to be trained for that data sequence, it would have been obvious for of ordinary skill in the art at the time the invention was made that a plurality of zeros is inserted into the preamble to be fed into the equalizer for retraining. Furthermore, Beale et al. does not expressly teach zero is inserted between each symbol of said header segment. However, in paragraph [0076], the header is transmitted at 2 Mbaud rate. Because the header is transmitted at 2 Mbaud rate, every other symbol of the header is zero, therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was

Art Unit: 2631

made that Beale et al. impliedly teaches zero being inserted between each symbol of said header segment. In paragraph [0076], after the equalizer has been retrained with the preamble of the correct symbol rate, the remaining of the header is decoded.

Allowable Subject Matter

3. Claims 2, 7, 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. Claims 8-14 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 8, claim 8 is allowable over the prior art of record since the cited references taken individually or in combination fails to particularly disclose a communication device comprising "an equalizer, wherein said equalizer includes a decision block capable of forcing a zero decision when zero is inserted into said preamble and header segments".

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Forney, Jr. et al. U.S. Patent 3,978,407 discloses "Fast Start-up Adaptive Equalizer Communication System Using Two Data Transmission Rates".

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit: 2631

KCT

Khanh con g Tron

03/18/2005

Examiner KHANH TRAN